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May 1, 2002

VIA PRIORITY POST

Assistant Commissioner for Patents
United States Patent and Trademark Office
Washington, D.C. 20231

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GROUP 3600

Dear Sir:

RE: **Patent Application No.:** **09/986,801**
Filing Date: **November 13, 2001**
Title: **SYSTEM AND METHOD FOR STORING AND RETRIEVING EQUIPMENT INSPECTION AND MAINTENANCE DATA**
Applicant/Inventor Name: **Ron CRAIK**
Group Art Unit: **3661**

I enclose the following documents in connection with the referenced application:

1. Transmittal Form (PTO/SB/21);

2. Certified copy of Canadian Patent Application No. 2,330,697, filed January 15, 2001, on the basis of which a claim for priority has been made in the present application pursuant to 35 U.S.C. 119.

3. Self-addressed return postcard.

Yours truly,
MILLER THOMSON
Per:

DON TOMKINS
Registration No. 48,206

DT/rs
Encls.

PTO/SB/21 (08-00)
Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	09/986,801
Filing Date	Nov. 13, 2001
First Named Inventor	CRAIK
Group Art Unit	3661
Examiner Name	
Total Number of Pages in This Submission	8
Attorney Docket Number	45207.1

ENCLOSURES *(check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment / Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☒ Certified Copy of Priority Document(s)
- ☐ Response to Missing Parts/ Incomplete Application
  - ☐ Response to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Assignment Papers *(for an Application)*
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
- ☐ After Allowance Communication to Group
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to Group *(Appeal Notice, Brief, Reply Brief)*
- ☐ Proprietary Information
- ☐ Status Letter
- ☐ Other Enclosure(s) *(please identify below)*:

Remarks

CANADIAN PATENT APPLICATION No. 2,330,697

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	DONALD V. TOMKINS Reg. No. 48,206; Customer No. 31209
Signature	
Date	MAY 1, 2002

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Washington, DC 20231 on this date: _____

Typed or printed name			
Signature		Date	

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Canadian Intellectual Property Office
An Agency of Industry Canada

Bureau canadien des brevets
Certification

Canadian Patent Office
Certification

La présente atteste que les documents ci-joints, dont la liste figure ci-dessous, sont des copies authentiques des documents déposés au Bureau des brevets.

This is to certify that the documents attached hereto and identified below are true copies of the documents on file in the Patent Office.

Specification as originally filed, with Application for Patent Serial No: **2,330,697**, on January 15, 2001, by **RONALD CRAIK**, for "Method of Interactive Communication of Data Relating to the Inspection and Maintenance of Vehicle and/or Other Equipment ".

CERTIFIED COPY OF PRIORITY DOCUMENT

S. Grégoire

Agent certificateur/Certifying Officer

March 27, 2002

Date

Canada

(CIPO 68)
01-12-00

OPIC CI

TO: Canadian Intellectual Property Office, The Commissioner of Patents

FROM: Ronald Craik
c/o Whitt & Company
Barristers and Solicitors
555, 407 – 8th Avenue SW
Calgary AB T2P 1E5

Re: Method of interactive communication of data relating to the inspection and maintenance of vehicles and/or other equipment

I, Ronald Craik, am a resident of Canada, with the mailing address set out above. I am the inventor and the applicant of the invention described below and I seek the grant of a Canadian patent for my Invention. This document sets forth a description of my Invention as required under section 93 of the *Patent Rules*.

BACKGROUND—FIELD OF INVENTION

My Invention relates to the fields of vehicle and/or other equipment inspection and maintenance. Specifically, to a new, useful and not obvious method of interactively storing, accessing and transmitting data in conjunction with the inspection and maintenance of vehicles and/or other equipment such as commercial aircraft and ships. It has also been previously known, namely in the security services industry, to use a method of monitoring the date and time of an individual's access to a particular location, which is recorded by means of pen and paper or access card scanning data. The idea itself of having pre-assigned designated tasks at check-point intervals is also not novel.

The purpose of my Invention is to improve the existing method by which vehicles and/or other equipment such as commercial aircraft and ships are currently inspected and maintained. Ultimately, my Invention aims to increase safety, effectiveness and efficiency while reducing the amount of paper and time used to inspect and maintain complex vehicles and/or other equipment and systems.

BACKGROUND—DESCRIPTION OF PRIOR ART

The prior art consists of various methods of recording, transmitting and storing data in conjunction with apparatus such as aircraft and motor vehicles, with a plurality of different techniques and apparatus. It has previously been known to use technologies such as ibutton®[1], computer chips, memory chips and applicable readers/interpreters, wireless devices such as Palm Pilots™[2], application service providers, maintenance logs, manuals, check lists, databases and web enabled software in various combinations for a wide range of applications.

United States Patent No. 5,931,877 discloses an advanced maintenance system for aircraft and military weapons comprising a central data warehouse for storing information, a data transceiver for communicating with the central data warehouse, a communications link between central data warehouse and a data transceiver and test means for testing equipment components. The US 5,931,877 system differs from my

[1] ibutton® is a registered trade-mark of Dallas Semiconductor Corporation
[2] Palm Pilot™ is the trade-mark of Palm Computing Inc.

Invention because it does not implement ibutton® or other computer chip devices to store information on the actual object that is being inspected or maintained. All information is stored in the central data warehouse and a special maintenance crew must perform all of the repairs.

United States Patent No. 5,831,664 discloses a method and system for synchronizing data between at least one mobile interface device and an interactive terminal. The US 5,831,664 method and system is for use with an interactive terminal having a display and a predetermined application associated therewith, a method for synchronizing display of data relating to the predetermined application between the interactive terminal and at least one mobile interface device having a display.

Canadian Patent No. 2,194,065 discloses a communication system for supplying information about objects on display by means of hand-held devices, comprising one or more hand-held transceivers, with a central unit, with wireless communication between the central unit and the transceiver. The main memory is stored in the central unit wherein digital information is stored in information blocks containing audio and/or video data. The problem with the CDN 2,194,065 patent is the claims suggest that only audio and video data may be used, and it does not account for visual graphics or purely textual data or composed or created representations of data. The CDN 2,194,065 invention also differs from my Invention because it does not discuss the storage and reading of information on portable memory nodes on the object of interest. The CDN 2,194,065 patent is limited in scope to communications between the portable data transceiver and the central data storage unit.

Canadian Patent No. 2,303,715 discloses a method for the improved transmission efficiency between data networks and wireless communication systems by establishing a transmission protocol proxy means at an intermediate point in a communication link between the mobile user and the data node. However, the CDN 2,303,715 patent is strictly limited to links between mobile users and the data node and there is no mention of a database or central computer.

United States Patent No. 5,446,736 discloses a method and apparatus for connecting a node to a wireless network using a standard protocol comprised of a standard transmission-medium-independent protocol stack that generates data packets to send to other nodes, and that processes data packets received from other nodes. In total the US 5,446,736 patent is for 47 claims for similar scenarios, including a layer that reduces data flow by discarding broadcast data packets; data packets with header fields and an optimization layer. The US 5,446,736 patent does not give mention to hand-held devices as a middle-man technology in the wireless network established and applies only to the connection of a node to a wireless network.

United States Patent No. 6,152,369 discloses a system for storing, accessing and displaying html-encoded documents relating to an object being worked upon in a work environment by a human operator wearing body-wearable http-enabled client system. The deficiency is the body-wearable client system is mandatory in the US 6,152,369 patent, as well as the lack of object-mounted memory.

United States Patent No. 5,844,473 discloses a method and apparatus for the remote collection of operational information (mileage, speed, acceleration, time, etc.) with respect to a mobile vehicle via a cellular communication network and safety inspection buttons.

United States Patent No. 5,671,158 discloses an apparatus and method for use at motor vehicle emission test stations that provides wireless communication between a computer and a technician.

United States Patent No. 5,869,819 discloses an Internet-based system and method for tracking objects bearing URL-encoded bar code symbols with package log-in subsystem.

United States Patent No. 5,260,553 discloses an automatic hand-supportable laser bar code symbol scanner and method of reading bar code using the same.

United States Patent No. 5,992,753 discloses an Internet-base system for enabling information related transaction over the internet using Java enabled internet terminals provided with bar code symbol readers for reading Java-applet encoded bar code symbols.

None of these includes an element of changeable (read/write) memory in solid state form at or on the object of interest.

SUMMARY

My Invention is a new, useful and not obvious method of interactively storing, accessing and transmitting data relating to the inspection and maintenance of vehicles and/or other equipment such as commercial aircraft and ships. In essence, the method creates a very unique and effective way of communicating information relating to certain steps and procedures necessary in the field of aircraft and ship maintenance and inspection to technicians and service systems, while storing maintenance audit and status information collected from technicians at dispersed points on the object of the maintenance.

A typical embodiment – the ordinary embodiment may change for particular situations – is a method that is based on the strategic placement of readable/writable solid-state memory chips on commercial aircraft and ships. These chips are accessed by the maintenance and/or inspection person via a chip reader and portable computing device, enabling that person to access a wide range of information relating to the aircraft or ship including inspection checklists, maintenance records, diagrams and "how-to" information and identifying the location of the memory chip to the system to enable efficient communication. The chip is also capable of receiving and storing, and later transmitting information relating to the location, time and date of inspection and service and the identity of the maintenance or inspection technician. Certain aspects of the information from the chip and the processing apparatus are then sent to a central database for record keeping and monitoring. The central database will interpret the information and fail-safe procedures can be implemented to ensure that inspection and maintenance procedures are followed and fully satisfied before approving the aircraft or ship for service. A detailed account of the inspection is also recorded, including at least the identity of the inspector, and the date, time and results of the inspection, on the chip on the inspection point.

Information is stored, accessed and transmitted from the central location, within a central database, and from the portable data transceiver, such as a Palm Pilot™, and the chip, such as an ibutton® or other read/write self-sustainable memory chips with a unique identifier, located on the object itself. The information on the chip will relate to time and date stamping, uniquely identifying the chip, and providing information on that particular location, such as the necessary procedures required for inspection, as well as prior and future location information. Essentially, the chip will store information that will act as, or facilitate a system to provide, a detailed guide to the inspection and/or maintenance person accessing the chip. The chip will also record activity, which

can also be monitored by the central processor for ensuring consistency and an audit of inspection and maintenance procedures.

My Invention currently uses wireless technology, but it is not dependant upon it. My Invention can utilize any form of communication that is effective, including cellular, wireless, Ethernet, satellite, cable, DSL, and telephone lines. My Invention also does not focus on the remote collection of operational data of the particular object. The focus is on the storage of information on the object so this information can be accessed and interpreted by numerous parties to provide an audit trail of procedures done at that chip's location, as well as providing location and other information from the chip to the overall system.

My Invention does not utilize node to node communication. It is based on communication links between the chip, the portable computing device and the central mainframe (2 links, 3 nodes).

My Invention does not use laser scanners or bar codes, rather it implements uniquely identifiable chips that are durable and capable of storing information at that location and whose memory can contain static and changeable information useful to the overall maintenance system. My Invention may use Java and Java readers but will not use bar codes. My Invention may also use http information servers and HTML-encoded documents in addition to or instead of Java based documents.

DESCRIPTION

My Invention consists of the following parts, in one embodiment, which is set out here by way of example and is not meant to restrict the scope of the Invention.

1. method;
2. chip;
3. chip reader or interpreter;
4. processing apparatus;
5. central processing apparatus;
6. database.

The method (1) is based on the interactive communication of information relating to the inspection and maintenance of vehicles and/or other equipment such as commercial aircraft or ship involving a chip (2), chip reader (3) a processing apparatus (4) a central processing apparatus (5) and a database (6). The method is very effective, cost efficient and will enhance safety precautions in the commercial airline and cruise industries.

The chip (2) may be comprised of any device suitable for use, including but not limited to ibutton® computer chips, computer chips or any other readable/writable memory chips that are uniquely identifiable, durable to weather, temperature and atmospheric changes, capable of storing and transmitting information including inspection manual information checklists, and procedures, an audit record of identity of the inspecting party and the time and date of inspection, and are compatible with a chip reader (3).

The chip reader (3) is comprised of any apparatus suitable for use, for example, ibutton® probes. The necessary feature of the chip reader is that it must be able to communicate (access and transmit information and instructions) with the chip (2) and the processing apparatus (4). The chip reader (3) may simply be an adapter or extension of the processing apparatus.

The processing apparatus (4) is comprised of any apparatus suitable for use, including but not limited to hand-held computing devices such as suitably configured and programmed Palm Pilot™, portable or lap top computers. The apparatus must be compatible with the chip reader (3) (or have a built-in chip reader or adapter) and the central processing apparatus (5), and must be capable of displaying information accessed from the chip (2) and transmitting selective portions of the information to the central processing apparatus (5).

The central processing apparatus (5) is comprised of any apparatus suitable for use, including but not limited to a computer. The central processing apparatus (5) must be able to communicate with the processing apparatus (4), and must be capable of storing the database (6) in such a manner that the database (6) is accessible and manipulable.

The database (6) is comprised of any software and platform suitable for use, including but not limited to Unix, HTML, Pearl, JAVA, and Windows. The database must be capable of being stored and must be accessible and transferable. Information stored in the database will include inspection and maintenance manuals, records and procedures, and fail-safe stoppage and approval check-points, updates, checklists, location information, directions, and audit information. It may be linked or form part of a larger maintenance, parts management, and logistics system.

Dated at Calgary, Alberta, on January 11th, 2001.

Witness

RONALD CRAIK